DOCUMENT RESUME

ED 076 867 AC 014 379

AUTHOR Griffin, Anthony C.; And Others
TITLE Some Factors Influencing Dairy Practice Adoption by Grade A Milk Producers in Selected Tennessee Counties. A Research Summary of a Graduate Study.
INSTITUTION Tennessee Univ., Knoxville. Agricultural Extension Service.
PUB DATE Mar 73
NOTE 45p.; Extension Study No. 39; S. C. 833

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Adoption (Ideas); Agricultural Production; *Agricultural Skills; Animal Science; *Dairymen; *Farm Management; Livestock; *Rural Extension; Surveys; Technical Reports

ABSTRACT

A study was conducted to determine the relationships between Grade A dairy producers' milk production levels and size of herd and their use of 21 milk production practices recommended by the University of Tennessee. The population consisted of 405 Grade A dairymen in 42 Tennessee counties. The extension agent in each county interviewed 10 or more dairymen. The 21 recommended milk production practices were classified into groups--herd management, breeding management, forage feeding, and concentrate feeding. Milk production levels were significantly related to 14 of the 21 recommended milk production practices. A significantly greater proportion of the producers in the high than in the low milk production group were using each of the 14 recommended practices. Size of herd was significantly related to 8 of the recommended practices. Size of herd was significantly related to only one group, herd management. Level of milk production was significantly related to the total number of recommended practices used. Size of herd was not significantly related to the total number of recommended practices used. (Author/KM)

FILMED FROM BEST AVAILABLE COPY

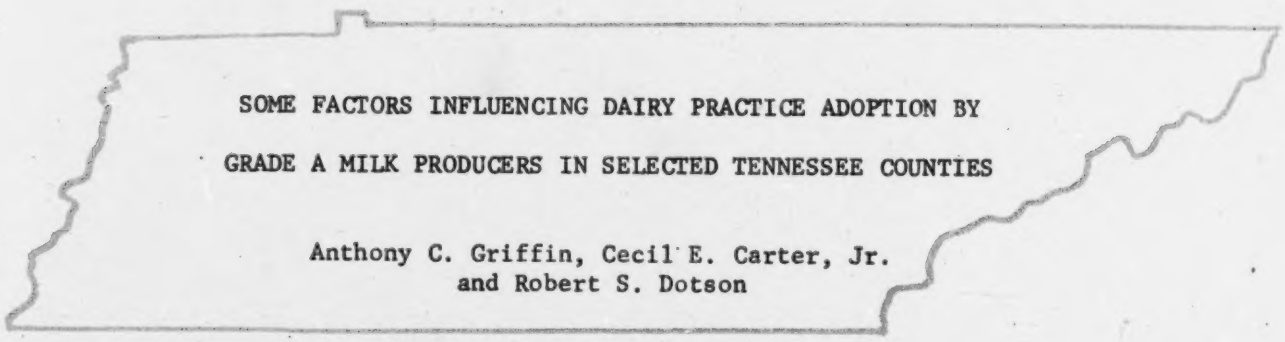
RESEARCH SUMMARY SERIES IN AGRICULTURAL EXTENSION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

ED 076867

Extension Study No. 39
S. C. 833

A Research Summary of a Graduate Study



SOME FACTORS INFLUENCING DAIRY PRACTICE ADOPTION BY GRADE A MILK PRODUCERS IN SELECTED TENNESSEE COUNTIES

Anthony C. Griffin, Cecil E. Carter, Jr.
and Robert S. Dotson

AGRICULTURAL EXTENSION EDUCATION
AGRICULTURAL EXTENSION SERVICE
THE UNIVERSITY OF TENNESSEE

AAO 14379

March 1973

TABLE OF CONTENTS

		PAGE
	ABSTRACT	ii
I.	PURPOSES	1
II.	METHOD OF INVESTIGATION	1
III.	REVIEW OF MAJOR FINDINGS	4
	Relationship Between Grade A Dairy Milk Producers' Milk Production Levels and Their Use of 21 Milk Production Practices .	4
	Relationship Between Grade A Dairy Producers' Size of Herd and Their Use of 21 Milk Production Practices	6
	Relationship Between Grade A Dairy Producers' Milk Production Levels and Their Use of Groups of Practices Concerning "Herd Management," "Breeding Management," "Forage Feeding," and "Concentrate Feeding" Practices	8
	Relationship Between Grade A Dairy Producers Size of Herd and Their Use of Groups of Practices Concerning "Herd Management," "Breeding Management," "Forage Feeding," and"Concentrate Feeding" Practices	9
	BIBLIOGRAPHY	11
	APPENDIX	13
	Grade A Milk Production Practice Checklist.	14
	Tables I through XV	16

SOME FACTORS INFLUENCING DAIRY PRACTICE
ADOPTION BY GRADE A MILK PRODUCERS IN
SELECTED TENNESSEE COUNTIES

by

Anthony C. Griffin

March 1972

ABSTRACT

The purpose of this study was to determine the relationships between Grade A dairy producers' milk production levels and size of herd, and their use of 21 milk production practices recommended by The University of Tennessee.

The population consisted of a randomly-selected sample of 405 Grade A dairymen in 42 Tennessee counties where 40 percent of the total agricultural income per county was from dairying, or where annual county income from dairying equalled or exceeded three-quarters-of-a-million dollars.

In March, 1970, the Agricultural Extension Agent in each selected county conducted interviews with 10 or more randomly selected Grade A dairymen in the county.

Dairymen who were producing 10,400 pounds of milk per year, or more, were classified as high producers, while those producing less than 10,400 pounds of milk per year were classified as low producers. Producers with 59 cows or more were termed large dairymen, while producers with less than 59 cows were classed as small dairymen.

The 21 recommended milk production practices were classified into the following groups of practices: "herd management," "breeding management," "forage feeding," and "concentrate feeding."

Chi square statistical analysis was used to determine the relationship between milk production level and size of herd and of the 21 recommended milk production practices and each of the four groups of practices.

Chi square values that attained the .05 level of probability were accepted as being statistically significant.

Grade A dairy producers' milk production levels were significantly related to 14 of the 21 recommended milk production practices. These 14 practices were: (1) bred the majority of their herd to bulls with a Plus A.I. Proof; (2) provided an adequate amount of stored forage; (3) provided high quality hay and/or silage; (4) fed an all-grain concentrate mixture to the milking herd; (5) fed grain according to production; (6) fed forage based on U. T. recommendations; (7) kept adequate milk production records; (8) maintained adequate herd records; (10) provided separate feeding and loafing areas for the milking herd; (11) checked the milking system every six months; (12) prepared each cow properly for milking; (13) obtained the advice of professional diary workers; (14) had at least 75 percent of cows freshen in the fall.

A significantly greater proportion of the producers in the high than in the low milk production group were using each of the 14 recommended milk production practices.

Grade A producers' size of herd was significantly related to eight of the recommended milk production practices. These eight practices were: (1) provided an adequate amount of stored forage; (2) provided high quality hay and/or silage; (3) provided an adequate amount of improved pasture; (4) maintained adequate milk production records; (5) maintained adequate herd records; (6) provided separate feeding and loafing areas; (7) checked the milking system every six months; (8) obtained the advice of professional dairy workers.

A significantly greater proportion of the large producers than of the small producers used these eight recommended practices.

A significantly greater proportion of the high producers than of of the low producers were using a larger number of "herd management," "breeding management," "forage feeding," and "concentrate feeding" practices.

Size of herd was significantly related to only one group of milk production practices (i.e. "herd management" practices). Producers with large herds tended to use more "herd management" practices than did small producers.

Level of milk production was significantly related to the total number of recommended practices used. Producers with a high level of milk production tended to use more of the 21 practices than did low producers.

Size of herd was not significantly related to the total number of recommended practices used. Large and small dairymen did not differ significantly as to their use of all 21 recommended practices.

Finally, a significant relationship existed between producers' level of milk production and size of herd. A significantly larger proportion of high producers than low producers had large herds.

A RESEARCH SUMMARY*

I. PURPOSES

The purpose of the study was to determine the relationships between Grade A dairy producers' milk production levels, size of herd and their use of 21 milk production practices recommended by the University of Tennessee. More specifically, objectives of the study were:

1. To determine the relationships between Grade A dairy producers' milk production levels and their use of 21 milk production practices recommended by the University of Tennessee.
2. To determine the relationships between Grade A dairy producers' herd size and their use of 21 milk production practices recommended by the University of Tennessee.
3. To determine the relationships between Grade A dairy producers' milk production levels, herd size and their use of designated Herd Management, Breeding Management, Forage Feeding and Concentrate Feeding practices recommended by the University of Tennessee.

II. METHOD OF INVESTIGATION

Population and Sample

The population consisted of Grade dairymen in 42 Tennessee counties

*Anthony C. Griffin, University of Tennessee, Graduate Student, Agricultural Extension Education Section.

Cecil E. Carter, Jr., Associate Professor, Agricultural Extension Education Section, The University of Tenneseee, Agricultural Extension Service, Knoxville, Tennessee.

Dotson, Robert S., Professor and Head, Agricultural Extension Education Section, The University of Tennessee, Agricultural Extension Service, Knoxville, Tennessee.

which had at least 40 percent of its total agricultural income from dairying and/or counties with an annual income from dairying of at least three-quarters of a million dollars. The "Nth" number technique was used to secure a random sample of at least 10 Grade A producers from each of the 42 Tennessee counties. The sample consisted of 420 Grade A dairymen. Data from 405 of the dairymen were judged to be accurate and were included in the analyses of the relationships between producers' size of herd and their use of the 21 recommended milk production practices. Information concerning the average pounds of milk produced per cow during 1969 was not available on 14 of the herds, therefore, 391 dairymen were included in the analyses of the relationship between producers' levels of milk production and their use of the 21 recommended milk production practices.

Method of Securing Data

A Grade A Milk Production Practice Checklist, developed by Specialists at the University of Tennessee, Extension Dairy and Education Sections, was used to record information concerning milk production levels, numbers of cows in the dairy herd and use of the 21 recommended practices. The Agricultural Extension Agent in each of the 42 counties interviewed the Grade A dairymen in his county and recorded the information on the interview schedule. Interviews were conducted in March of 1970.

Analysis of Data

The Grade A dairymen were classified into high and low milk production categories. This classification was based upon the average

pounds of milk produced in 1969 by the 391 Grade A dairymen. Dairymen who had a herd average above the mean (10,400 pounds of milk was the average for the 391 producers surveyed) pounds of milk were classified as high producers; those with a herd average of 10,400 pounds or less were classified as low producers.

The Grade A dairymen also were classified into large and small producer categories based upon the total number of cows in their herd at the time the interviews were conducted. Producers who had above the mean number of cows (59 cows was the average size of herd for the 405 Grade A dairymen) were classified as small producers.

The 21 recommended milk production practices were classified into the following groups of practices: (1) "Herd Management;" (2) "Breeding Management;" (3) "Forage Feeding," and (4) "Concentrate Feeding." This classification was used only in the analysis included in the final section of the study.

Completed interview schedules were mailed by the County Extension Agents to the Agricultural Extension Education Department. Data were coded and information punched on data cards for analysis by the University of Tennessee Computing Center.

A Contingency Table Analysis Program (BMD02S) was used to determine the relationships between milk production level and size of herd and each of the 21 recommended milk production practices. A chi square statistical analysis was used to determine the significance of relationship. Probability levels were read from chi square statistical tables. Chi square values which achieved the .05 level of probability were accepted as statistically significant.

III. REVIEW OF MAJOR FINDINGS

Major findings will be summarized and discussed under four major headings which related to the objectives of the study.

Relationship Between Grade A Dairy Producers' Milk Production Levels and Their Use of 21 Milk Production Practices*

Grade A dairy producers' milk production levels were found to be significantly related (achieved at the .05 level of probability) to 14 of the 21 milk production practices. A high level of milk production was associated with the use of these 14 milk production practices. In other words, a significantly greater proportion of the producers in the high than in the low milk production group were using each of the 14 recommended practices. An average of 18 percent more of the producers in the high milk production group than in the low production group (69 percent of the high and 51 percent of the low) were using each of these 14 recommended practices.

Use of the seven milk production practices which were not significantly related to milk production levels was relatively high for both the high and low production groups of Grade A dairy producers. An average of 77 percent of the producers in the high groups, compared to 76 percent of those in the low milk production group, were using each of the seven other practices.

When Grade A milk producers in the high and the low milk production groups were compared as to their use of all 21 recommended milk production practices, an average of 71 percent of the high milk production group compared to 59 percent of the low group were using each of the 21 recommended practices.

*See Table I in the Appendix.

More specifically, the study showed that a significantly greater proportion of the Grade A dairy producers in the high than the low milk production group: (1) bred the majority of their herd to a bull with a plus A.I. proof (77 vs. 49 percent, respectively); (2) provided an adequate amount of stored forage so that each cow had all the hay and/or silage she could consume every day (92 vs. 73 percents); (3) provided high quality hay and/or silage (83 vs. 63 percents); (4) fed an all-grain concentrate mixture to milking herd (96 vs. 87 percents); (5) fed grain according to production (64 vs. 46 percents); (6) fed forage based on U-T Forage Testing Laboratory recommendations (19 vs. 9 percents); (7) kept adequate milk production records - DHIA, DHIR, OS, or WADAM (48 vs. 14 percents); (8) maintained a 12-14 month calving interval the previous year (94 vs. 85 percents); (9) maintained adequate herd records - heat, health, identification (77 vs. 52 percents); (10) provided separate feeding and loafing areas for milking herd (62 vs. 42 percents);(11) checked the milking system every 6 months to see that it was functioning properly as to pulsation rate and vacuum level (64 vs. 50 percents); (12) prepared each cow properly for milking before the machine was attached (39 vs. 25 percents); (13) obtained the advice of professional dairy workers with regard to herd management (79 vs 62 percents), and (14) bred so that at least 75 percent of cows freshened in the fall (66 vs. 52 percents).

Grade A dairy producers' level of milk production was not significantly related to seven of the 21 milk production practices. Producers with high levels of milk production did not differ from those who had lower herd averages in regard to their use of the following practices:

(1) bred heifers to freshen at 24-27 months of age (81 vs. 81 percents, respectively); (2) allowed a period of at least 60 days following calving for each cow prior to breeding (96 vs. 93 percents); (3) provided an adequate amount--1 to 2 acres per cow-- of improved pasture (54 vs. 64 percents); (4) provided an adequate amount of summer pasture -- one-fourth - one-half acre per cow (41 vs. 42 percents); (5) provided an average dry period of 60 days per cow (90 vs. 88 percents); (6) raised 75 percent of herd replacements (84 vs. 79 percents), and (7) systematically used a recommended method of fly control around barns, loafing and milking areas (91 vs. 87 percents).

Relationship Between Grade A Dairy Producers' Size of Herd and Their Use of 21 Milk Production Practices*

Statistical analysis revealed that Grade A dairy producers' size of herd was significantly related to eight of the 21 recommended milk production practices. A significantly larger proportion of the large producers (those with above the mean number of cows-- 59 cows was the mean for all Grade A dairy producers surveyed) than of the small producers used seven of the eight practices. A significantly greater proportion of the small producers than of the large were providing an adequate amount--one to two acres per cow--of improved pasture (66 percent compared to 48 percent respectively). On the average 67 percent of the large producers compared to 56 percent of the small producers were using each of the eight milk production practices which were significantly related to herd size.

*See Appendix, Table II.

More specifically, the study showed that a significantly greater proportion of the large than of the small producers: (1) provided an adequate amount of stored forage so that each cow had all the hay and/or silage that she could consume every day (90 vs. 77 percents, respectively); (2) provided high quality hay and/or silage (82 vs. 66 percents); (3) kept adequate milk production records last year (43 vs. 24 percents); (4) maintained adequate herd records - heat, health, identification (72 vs. 60 percents); (5) provided separate feeding and loafing areas for the herd (66 vs. 43 percents); (6) checked their milking system every six months to see that it was functioning properly as to pulsating rate and vacuum level (65 vs. 51 percents), and (7) obtained the advice of professional dairy workers with regard to management of the herd (70 vs. 64 percents).

Concerning 13 of the milk production practices which were not significantly related it was found that an average of 69 percent of the larger producers compared to 67 percent of the smaller producers were using each of the 13 practices. On eight of these 13 practices a greater proportion (i.e. not significant at the .05 level of probability) of the large than the small producers were using the recommended practices. Conversely, on the remaining five of the 13 practices an equal or greater percent of the small than of the large producers (not significant at the .05 level of probability) were using the recommended practices.

More specifically concerning the milk production practices which failed to achieve the .05 level of probability, the eight practices which were used by a greater proportion of the large than of the small producers

were as follows: (1) bred a majority of the herd to a bull with A.I. proof (68 vs. 60 percents, respectively); (2) bred heifers to freshen at 24 - 27 months of age (85 vs. 79 percents); (3) allowed a period of at least 60 days following calving for each cow prior to breeding (95 vs. 93 percents); (4) provided an adequate amount of summer pasture (44 vs. 39 percents); (5) fed an all-grain concentrate mixture to milking herd (94 vs. 90 percents); (6) fed grain according to production (56 vs. 54 percents); (7) fed forage based on U. T. recommendations last year (18 vs. 12 percents), and (8) provided an average dry period of 60 days per cow (89 vs. 87 percents).

The five milk production practices which were used by an equal or a larger proportion of the small producers (not significant at the .05 level of probability) were as follows: (1) maintained a 12-14 month calving interval (90 vs. 88 percents, respectively); (2) raised at least 75 percent of herd replacements (81 vs. 81 percents); (3) prepared each cow properly for milking before the machine was attached (33 vs. 31 percents); (4) systematically used a recommended method of fly control around barns, loafing and milking areas (91 vs. 87 percents), and (5) at least 75 percent of cows freshened in the fall last year (61 vs. 58 percents).

Relationships Between Grade A Dairy Producers' Milk Production Levels and Their Use of Groups of Practices Concerning "Herd Management," "Breeding Management," "Forage Feeding" and "Concentrate Feeding" Practices.*

The 21 recommended milk production practices were grouped into

*See data in Tables III, IV, V and VI.

four categories (i.e. "herd management," "breeding management," "forage feeding" and "concentrate feeding" practices) in order to determine whether producers in the high and low level of milk production groups, differed as to their use of specific kinds of milk production practices. This analysis revealed that a significantly larger proportion of the producers in the high milk production category, than those in the low milk production category, were using a larger number of the "herd management," "breeding management," "forage feeding," and "concentrate feeding" practices.

Relationships Between Grade A Dairy Producers Size of Herd and Their Use of Groups of Practices Concerning "Herd Management," "Breeding Management," "Forage Feeding" and "Concentrate Feeding" Practices*

The 21 recommended milk production practices also were grouped into four categories in order to determine whether producers with large and with small herd sizes differed in their use of specific kinds of milk production practices. Size of herd was significantly related only to one group of milk production practices (i.e. herd management practices). Producers with large dairy herds used more of the herd management practices than did the small producers. Although not significant at the .05 level of probability there was a tendency also for the large producers to use more of the "breeding management," "forage feeding" and "concentrate feeding" practices.

When all 21 practices were analyzed as to their use by producers with high levels of milk production, it was found that production level

*See data in Tables VII, VIII, IX and X.

was significantly related to the total number of recommended milk production practices used. Producers with high production levels tended to use more of the 21 practices than did those with low production levels.

Comparison of the large and the small producers as to their use of the total for all 21 of the recommended practices showed that they did not differ significantly (i.e. at the .05 level of probability).

Finally, analysis of the data indicated that a significant relationship existed between producers' levels of production and their size of herd. A significantly larger proportion of the high producers (50 percent) than of the low producers (28 percent) had large herds. Conversely, the low producers tended to have smaller dairy herds.

BIBLIOGRAPHY

1. "Annual (Project III) Plan of Work for Calendar Year 1966." Unpublished document. Tennessee Agricultural Experimental Extension Service, University ofTennessee, Knoxville, 1965.

2. Beeler, Houston. "Characteristics of Williamson County Grade A Milk Producers and Their Farms." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Education, University of Tennessee, Knoxville, 1966.

3. _____. "Management Practices of Williamson County Grade A Milk Producers." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Education, University of Tennessee, Knoxville, 1966.

4. Bureau of the Census. 1964 United States Census-Department of Agriculture, "Tennessee." United States Department of Commerce, Washington, D. C.

5. Glasgow, Joseph. "Management Practices of Lincoln County Grade A Milk Producers." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Education, University of Tennessee, Knoxville, 1968.

6. Hunter, Arnold Fay. "Management Practices of Greene County Grade A Milk Producers." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Service, University of Tennessee, Knoxville, 1966.

7. Interview with Mr. Clyde Chappell, Dairy Extension Department, Agricultural Extension Service, University of Tennessee, Knoxville, July, 1966.

8. Nutt, T. J. "Management Practices of Marshall County Grade A Milk Producers." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Education, University of Tennessee, Knoxville, 1966.

9. Ross, Robert Martin. "Management Practices of Rutherford County Grade A Milk Producers." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Education, University of Tennessee, Knoxville, 1966.

10. _____. "Factors Influencing Dairy Management Practice Adoption by Rutherford County Grade A Milk Producers." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Education, University of Tennessee, Knoxville, 1966.

11. Shearon, George Curtis. "Management Practices of Henry County Grade A Milk Producers." Summary of Master of Science Problem in Lieu of Thesis in Agricultural Extension Education, University of Tennessee, 1965.

12. Tennessee Crop and Reporting Service. Agricultural Statistics, Bulletin T-6, Nashville, August, 1969.

APPENDIX

THE AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF TENNESSEE
Knoxville, Tennessee

GRADE A MILK PRODUCTION PRACTICE CHECKLIST

Name _____ Address _____

County _____ Date _____ Tenure Status _____ No. _____

Total number of cows in herd ___ Number registered ___ Number Grade ___

Herd average _____ Lbs. milk _____ Lbs. fat _____

RECOMMENDED PRACTICE	YES	NO
1. Was the majority of your herd bred to a bull with a plus A.I. (artificial insemination) proof last year (i.e., his artificially sired daughters' production exceeded that of their herdmates?)		
2. Were heifers bred to freshen at 24-27 months of age?		
3. Was a period of at least 60 days following calves allowed each cow prior to breeding?		
4. Was an adequate amount of stored forage provided so that each cow had all the hay and/or silage that she could consume every day.		
5. Was high quality hay and/or silage (alfalfa-bud to 1/10 bloom stage; grasses and small grains--in the boot to early bloom stage; corn for silage--in the dent stage) provided last year?		
6. Was an adequate amount (1 to 2 acres per cow) of improved pasture (e.g., Ladino and orchard grass) provided last year?		
7. Was an adequate amount of summer pasture (1/4 to 1/2 acre per cow) provided?		
8. Was an all-grain concentrate mixture (i.e., one not containing ground hay, etc.) fed to your milking herd?		
9. Was grain fed according to production with special attention to assure that high producers got enough grain (i.e., 1 to 3 or 1 to 4)?		

RECOMMENDED PRACTICE	YES	NO
10. Was forage fed last year based on U.T. Forage Testing Laboratory recommendations?		
11. Were adequate milk production records kept last year (DHIA, DHIR, OS, or WADAM)?		
12. Was an average dry period of 60 days per cow provided last year?		
13. Was a 12-14 month calving interval maintained last year?		
14. Did you raise at least 75% of herd replacements?		
15. Were adequate herd records (heat, health, identification) maintained?		
16. Were separate feeding and loafing areas provided for milking herd?		
17. Was the milking system checked every 6 months to see that it was functioning properly as to pulsation rate and vacuum level?		
18. Was each cow prepared properly for milking (including the use of a strip cup or its equivalent, on each quarter) before the machine was attached?		
19. Was a recommended method of fly control systematically used around barns, loafing and milking areas?		
20. Was the advice of professional dairy workers obtained with regard to management of your herd?		
21. Did at least 75% of your cows freshen in the fall last year?		

Tennessee ET&S 416L1
2/12/70

TABLE I

RELATION BETWEEN GRADE A DAIRY PRODUCERS' PRODUCTION LEVEL AND USE OF 21 RECOMMENDED MILK PRODUCTION PRACTICES

Recommended Practice	All Producers (N=391) Percent	Production Levels: Below Mean (N=198) Percent	Production Levels: Above Mean (N=193) Percent	Chi square (d.f.=1) Value
(1) Bred the majority of the herd to a bull with a plus A.I. (artificial insemination) proof	63	49	77	33.1***
(2) Bred heifers to freshen at 24-27 months of age	81	81	81	1.0
(3) Allowed a period of at least 60 days following calving for each cow prior to breeding	94	93	96	0.3
(4) Provided an adequate amount of stored forage so that each cow had all the hay and/or silage she could consume every day	82	73	92	25.6***
(5) Provided high quality hay and/or silage (alfalfa - bud to 1/10 bloom stage; grasses and small grains - in the boot to early bloom stage; corn for silage - in the dent stage)	73	63	83	20.2
(6) Provided an adequate amount (1 to 2 acres per cow) of improved pasture (e.g. Ladino and orchard grass	59	64	54	3.8

TABLE I (continued)

Recommended Practice	All Producers (N=391) Percent	Production Levels: Below Mean (N=198) Percent	Production Levels: Above Mean (N=193) Percent	Chi Square (d.f.=1) Value
(7) Provided adequate amount of summer pasture (1/4-1/2 acre per cow)	41	42	41	0.0
(8) Fed an all-grain concentrate mixture (i.e. one not containing ground hay, etc.) to milking herd	92	87	96	9.1**
(9) Fed grain according to production with special attention to assure that high producers got enough grain (i.e. 1 to 3 ot 1 to 4)	55	46	64	12.5***
(10) Fed forage based on U-T Forage Testing Laboratory recommendations	14	9	19	7.5**
(11) Kept adequate milk production records (DHIA, DHIR, OS, or WADAM	31	14	48	53.6***
(12) Provided an average dry period of 60 days per cow	89	88	90	0.3
(13) Maintained a 12-14 month calving interval last year	89	85	94	8.1**
(14) Raised 75% of herd replacements	82	79	84	1.4
(15) Maintained adequate herd records (heat, health, identification)	64	52	77	28.1***

TABLE I (continued)

Recommended Practice	All Producers (N=391) Percent	Production Levels: Below Mean (N=198) Percent	Production Levels: Above Mean (N=193) Percent	Chi square (d.f.=1) Value
(16) Provided separate feeding and loafing areas for milking herd	52	42	62	15.7***
(17) Checked the milking system every 6 months to see that it was functioning properly as to pulsation rate and vacuum level	57	50	64	8.1**
(18) Prepared each cow properly for milking (including the use of a strip cup, or its equivalent, on each quarter) before the machine was attached	32	25	39	8.9**
(19) Systematically used a recommended method of fly control around barns, loafing and milking areas	89	87	91	1.1
(20) Obtained the advice of professional dairy workers with regard to herd management	71	62	79	13.9***
(21) Had at least 75% of the cows freshened in the fall	59	52	66	8.5**
Averages for 21 practices	65	59	71	12.4***

*p < .05
**p < .01
***p < .001

TABLE II

RELATION BETWEEN GRADE A DAIRY PRODUCERS' HERD SIZE AND THEIR USE OF 21 RECOMMENDED MILK PRODUCTION PRACTICES

Recommended Practice	All Producers (N=405) Percent	Size of Herd		Chi square (d.f.=1) Value
		Below Mean (N=252) Percent	Above Mean (N=153) Percent	
(1) Bred the majority of the herd to a bull with a plus A.I. (artificial insemination) proof	63	60	68	2.3
(2) Bred heifers to freshen at 24-27 months of age	81	79	85	2.3
(3) Allowed a period of at least 60 days following calving for each cow prior to breeding	94	93	95	0.4
(4) Provided an adequate amount of stored forage so that each cow had all the hay and/or silage that she could consume every day	82	77	90	10.7**
(5) Provided high quality hay and/or silage (alfalfa - bud to 1/10 bloom stage; grasses and small grains - in the boot to early bloom stage; corn for silage - in the dent stage	72	66	82	12.3***

TABLE II (continued)

Recommended Practice	All Producers (N=405) Percent	Size of Herd Below Mean (N=252) Percent	Size of Herd Above Mean (N=153) Percent	Chi square (d.f.=1) Value
(6) Provided an adequate amount (1 to 2 acres per cow) of improved pasture (e.g. Ladino and orchard grass)	59	66	48	13.0
(7) Provided an adequate amount of summer pasture (1/4 to 1/2 acre per cow)	41	39	44	1.1
(8) Fed an all-grain concentrate mixture (i.e. one not containing ground hay, etc.) to milking herd	91	90	94	1.4
(9) Fed grain according to production with special attention to assure that high producers got enough grain (i.e. 1 to 3 or 1 to 4)	55	54	56	0.3
(10) Fed forage based on U.T. recommendations last year	14	12	18	3.6
(11) Kept adequate milk production records last year (DHIA, DHIR, OS or WADAM)	31	24	43	17.1***
(12) Provided an average dry period of 60 days per cow	88	87	89	0.3

TABLE II (continued)

Recommended Practice	All Producers (N=405) Percent	Size of Herd: Below Mean (N=252) Percent	Size of Herd: Above Mean (N=153) Percent	Chi square (d.f.=1) Value
(13) Maintained a 12-14 month calving interval	89	90	88	6.3
(14) Raised at least 75% of herd replacements	81	81	81	0.0
(15) Maintained adequate herd records (heat, health, identification)	64	60	72	6.3+
(16) Provided separate feeding and loafing areas for the herd	52	43	66	20.1***
(17) Checked the milking system every six months to see that it was functioning properly as to pulsation rate and vacuum level	56	51	65	7.1**
(18) Prepared each cow properly for milking (including the use of a strip cup, or its equiivalent, on each quarter) before the machine was attached	32	33	31	0.3
(19) Systematically used a recommended method of fly control around barns, loafing, and milking areas	89	91	87	1.5

TABLE II (continued)

Recommended Practice	All Producers (N-405) Percent	Size of Herd: Below Mean (N=252) Percent	Size of Herd: Above Mean N=153) Percent	Chi square (d.f.=1) Value
(20) Obtained the advice of professional dairy workers with regard to management of the gerd	70	64	70	11.4***
(21) At least 75% of the cows freshened in the fall last year	60	61	58	0.5
Average Total Numbers, Percents and Value	65	63	68	5.3

*p < .05 level
**p < .01 level
***p < .001 level
+p .02 level

TABLE III

RELATION BETWEEN GRADE A DAIRY PRODUCERS' MILK PRODUCTION LEVELS AND NUMBERS OF HERD MANAGEMENT PRACTICES USED

Number of Herd Management Practices Used	All Producers (N=391) Percent	Production Level		Chi Square (d.f.=7) Value
		Below Mean (N=198) Percent	Above Mean (N=193) Percent	
None	2	4	0	57.4*
One	8	12	4	
Two	17	22	11	
Three	26	32	21	
Four	23	19	28	
Five	14	7	21	
Six	8	4	11	
Seven	2	0	4	
Total	100	100	100	

*$p < .001$

TABLE IV

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' MILK PRODUCTION LEVELS AND NUMBERS OF BREEDING MANAGEMENT PRACTICES USED

Number of Breeding Management Practices Used	All Producers (N=391) Percent	Production Level		Chi Square (d.f.=5) Value
		Below Mean (N=198) Percent	Above Mean (N=193) Percent	
None-Three	4	6	2	40.1*
Four	10	15	4	
Five	16	20	12	
Six	26	28	23	
Seven	24	18	31	
Eight	20	13	28	
Total	100	100	100	

*$p < .001$ level

TABLE V

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' MILK PRODUCTION LEVELS AND NUMBERS OF FORAGE FEEDING PRACTICES USED

Number of Forage Feeding Practices Used	All Producers (N=391) Percent	Production Level		Chi Square (d.f.=4) Value
		Below Mean (N=198) Percent	Above Mean (N=193) Percent	
None	4	7	1	20.5*
One	11	16	6	
Two	31	27	35	
Three	33	30	36	
Four	21	20	22	
Total	100	100	100	

*p < .001 level

TABLE VI

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' MILK PRODUCTION LEVELS AND NUMBERS OF CONCENTRATE FEEDING PRACTICES USED

Number of Concentrate Feeding Practices Used	All Producers (N=391) Percent	Production Level		Chi Square (d.f.=3) Value
		Below Mean (N=198 Percent	Above Mean (N=193) Percent	
None	5	8	1	23.6*
One	44	50	38	
Two	51	42	61	
Total	100	100	100	

*p < .001 level

TABLE VII

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' SIZE OF HERD AND NUMBER OF HERD MANAGEMENT PRACTICES USED

Number of Herd Management Practices Used	All Producers (N=405) Percent	Size of Herd		Chi Square (d.f.=7) Value
		Below Mean (N=252) Percent	Above Mean (N=153) Percent	
None	2	3	1	25.1*
One	8	10	5	
Two	17	19	13	
Three	26	29	22	
Four	23	22	25	
Five	14	10	20	
Six	8	6	10	
Seven	2	1	4	
Total	100	100	100	

*p < .001 level

TABLE VIII

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' SIZE OF HERD AND NUMBER OF BREEDING MANAGEMENT PRACTICES USED

Number of Breeding Management Practices Used	All Producers (N=405) Percent	Size of Herd		Chi Square (d.f.=5) Value
		Below Mean N=252) Percent	Above Mean (N=153) Percent	
Zero-Three	5	5	5	5.8*
Four	9	10	8	
Five	16	17	14	
Six	25	26	24	
Seven	24	25	22	
Eight	21	17	27	
Total	100	100	100	

*p < ,05 level

TABLE IX

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' SIZE OF HERD AND NUMBER OF FORAGE FEEDING PRACTICES USED

Number of Forage Feeding Practices Used	All Producers (N=405) Percent	Size of Herd		Chi Square (d.f.=4) Value
		Below Mean (N=252) Percent	Above Mean (N=153) Percent	
None	5	6	2	7.6*
One	11	12	10	
Two	30	28	34	
Three	34	36	30	
Four	20	18	24	
Total	100	100	100	

*Not significant at the .05 level of probability

TABLE X

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' SIZE OF HERD AND NUMBER OF CONCENTRATE FEEDING PRACTICES USED

Number of Concentrate Feeding Practices Used	All Producers (N=405) Percent	Size of Herd		Chi Square (d.f.=3) Value
		Below Mean (N=252) Percent	Above Mean (N=153) Percent	
None	5	5	5	2.0*
One	44	46	41	
Two	51	49	54	
Total	100	100	100	

*Not significant at the .05 level of probability

TABLE XI

RELATIONS BETWEEN GRADE A PRODUCERS' PRODUCTION LEVELS AND TOTAL NUMBERS OF RECOMMENDED PRACTICES USED

Total Number of Recommended Practices Used	All Producers (N=391) Percent	Production Level		Chi Square d.f.=1) Value
		Below Mean (N=198) Percent	Above Mean (M=193) Percent	
None-Ten	16	25	6	28.4*
Eleven-Twenty-one	84	75	94	
Total	100	100	100	

*p < .001 level

TABLE XII

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' SIZE OF HERD AND NUMBER OF RECOMMENDED PRACTICES USED

Number of Recommended Practices Used	All Producers (N=405) Percent	Size of Herd		Chi Square (d.f.=1) Value
		Below Mean (N=252) Percent	Above Mean (N=153) Percent	
None-Ten	16	19	12	2.7*
Eleven-Twenty-one	84	81	88	
Total	100	100	100	

*Not significant at the .05 level of probability

TABLE XIII

RELATIONS BETWEEN GRADE A DAIRY PRODUCERS' MILK PRODUCTION LEVELS AND HERD SIZE

Number of Cows in Herd	All Producers (N=391) Percent	Production Level		Chi Square (d.f.=1) Value
		Below Mean (N=198) Percent	Above Mean (N=193) Percent	
59 or less	61	72	50	19.9*
59 or more	39	28	50	
Total	100	100	100	

*p < .001 level

TABLE XIV

AVERAGE MILK PRODUCTION BY GRADE A DAIRY PRODUCERS WHO WERE AND WERE NOT USING 21 RECOMMENDED MILK PRODUCTION PRACTICES

Recommended Practice	Mean Pounds of Milk			
	Used Practice		Did Not Use Practice	
	Number of Producers	Pounds of Milk	Number of Producers	Pounds of Milk
1. Bred the majority of the herd to a bull with a plus A.I. (artificial insemination) proof.	243	10,881	146	9,496
2. Bred heifers to freshen at 24-27 months of age.	317	10,421	73	10,056
3. Allowed a period of at least 60 days following calving for each cow prior to breeding.	368	10,381	23	9,982
4. Provided an adequate amount of stored forage so that each cow had all the hay and/or silage that she could consume every day.	322	10,637	69	9,052
5. Provided high quality hay and/or silage (alfalfa - bud to 1/10 bloom stage; grasses and small grains - in the boot to early bloom stage; corn for silage - in the dent stage.	284	10,706	107	9,431
6. Provided an adequate amount (1 to 2 acres per cow) of improved pasture (e.g. Ladino and orchard grass).	232	10,157	159	10,649
7. Provided an adequate amount of summer pasture (1/4 to 1/2 acre per cow).	161	10,418	228	10,315
8. Fed an all-grain concentrate mixture (i.e. one not containing ground hay, etc.) to milking herd.	358	10,484	33	8,983

TABLE XIV, Continued.

Recommended Practice	Mean Pounds of Milk			
	Used Practice		Did Not Use Practice	
	Number of Producers	Pounds of Milk	Number of Producers	Pounds of Milk
9. Fed grain according to production with special attention to assure that high producers got enough grain (i.e. 1 to 3 or 1 to 4).	214	10,740	177	9,895
10. Fed forage based on U.T. recommendations last year	54	11,312	337	10,204
11. Kept adequate milk production records last year (DHIA, DHIR, OS, OR WADAM).	121	11,547	269	9,821
12. Provided an average dry period of 60 days per cow.	347	10,424	44	9,833
13. Maintained a 12-14 month calving interval.	349	10,481	42	9,325
14. Raised at least 75% of herd replacements	319	10,428	72	10,041
15. Maintained adequate herd records, (heat, health, identification).	251	10,821	140	9,525
16. Provided separate feeding and loafing areas for the herd.	203	10,861	187	9,814
17. Checked the milking system every six months to see that it was functioning properly as to pulsation rate and vacuum level.	221	10,612	170	10,025
18. Prepared each cow properly for milking (including the use of a strip cup, or its equivalent, on each quarter) before the machine was attached.	126	10,918	265	10,090

TABLE XIV, Continued.

Recommended Practice	Mean Pounds of Milk			
	Used Practice		Did Not Use Practice	
	Number of Producers	Pounds of Milk	Number of Producers	Pounds of Milk
19. Systematically used a recommended method of fly control around barns, loafing, and milking areas.	347	10,423	43	9,833
20. Obtained the advice of professional dairy workers with regard to management of the herd.	276	10,628	115	9,707
21. At least 75% of the cows freshened in the fall last year.	230	10,589	160	10,031

TABLE XV

AVERAGE SIZE OF HERD OF GRADE A DAIRY PRODUCERS WHO WERE AND WERE NOT USING 21 RECOMMENDED MILK PRODUCTION PRACTICES

Recommended Practice	Mean Size of Herd			
	Used Practice		Did Not Use Practice	
	Number of Producers	Number of Cows In Herd	Number of Producers	Number of Cows In Herd
1. Bred the majority of the herd to a bull with a plus A.I. (artificial insemination) proof.	243	63	146	55
2. Bred heifers to freshen at 24-27 months of age.	317	62	73	52
3. Allowed a period of at least 60 days following calving for each cow prior to breeding.	368	60	23	52
4. Provided an adequate amount of stored forage so that each cow had all the hay and/or silage she could consume every day.	322	61	69	52
5. Provided high quality hay and/or silage (alfalfa - bud to 1/10 bloom stage; grasses and small grains - in the boot to early bloom stage; corn for silage - in the dent stage).	284	64	107	50
6. Provided an adequate amount (1 to 2 acres per cow) of improved pasture (e.g. Ladino and orchard grass)	232	52	159	71
7. Provided adequate amount of summer pasture (1/4-1/2 acre per cow).	161	61	228	60
8. Fed an all-grain concentrate mixture (i.e. one not containing ground hay, etc.) to milking herd.	358	61	33	45

TABLE XV, Continued.

Recommended Practice	Mean Size of Herd			
	Used Practice		Did Not Use Practice	
	Number of Producers	Number of Cows In Herd	Number of Producers	Number of Cows In Herd
9. Fed grain according to production with special attention to assure that high producers got enough grain (i.e. 1 to 3 or 1 to 4).	214	61	177	58
10. Fed forage based on U.T. Forage Testing Laboratory recommendations.	54	76	337	57
11. Kept adequate milk production records (DHIA, DHIR, OS, OR WADAM)	121	72	269	55
12. Provided an average dry period of 60 days per cow.	347	60	44	57
13. Maintained a 12-14 month calving interval last year.	349	60	42	56
14. Raised 75% of herd replacements.	319	59	72	63
15. Maintained adequate herd records, (heat, health, identification)	251	64	140	53
16. Provided separate feeding and loafing areas for milking herd.	203	70	187	49
17. Checked the milking system every 6 months to see that it was functioning properly as to pulsation rate and vacuum level.	221	67	170	51
18. Prepared each cow properly for milking (including the use of a strip cup, or its equivalent, on each quarter) before the machine was a attached.	126	59	265	60

TABLE XV, Continued.

Recommended Practice	Mean Size of Herd			
	Used Practice		Did Not Use Practice	
	Number of Producers	Number of Cows in Herd	Number of Producers	Number of Cows in Herd
19. Systematically used a recommended method of fly control around barns, loafing and milking areas.	347	60	43	56
20. Obtained the advice of professional dairy workers with regard to herd management.	276	63	115	53
21. Had at least 75% of the cows freshened in the fall.	230	59	160	61

ERIC Clearinghouse
JUN 4 1973
on Adult Education